Listing of Claims:

1. (Previously Presented) A composite structural material comprising:

non-aromatic nylon fibers having a length of about 0.9 cm to 8 cm and a diameter of about 0.2 mm to 7 cm; and

a fused thermoplastic matrix comprising:

non-aromatic nylon, and polyolefin,

wherein the composite comprises some non-aromatic nylon fibers that are partially melted and others that remain unmelted; and

wherein the partially melted and unmelted non-aromatic nylon fibers are dispersed within the fused matrix and said composite structural material has a flexural elastic modulus (ASTM D790) of at least about $2 \cdot 10^5$ psi.

2. (Previously Presented) The composite material of claim 1, wherein said fused matrix comprises about 20 to 30 wt.% non-aromatic nylon and about 1 to 40 wt.-% of a polypropylene.

3. (Previously Presented) The composite material of claim 1, wherein said fused matrix comprises about 0.1 to 30 wt.-% nylon 6 and about 1 to 40 wt. % of a polypropylene.

4. (Previously Presented) The composite material of claim 1, wherein said fused matrix comprises about 0.1 to 30 wt. % nylon 6,6 and about 1 to 40 wt. % of a polypropylene.

5. (Previously Presented) The composite material of claim 1, wherein said fused matrix comprises a blend of virgin thermoplastic and thermoplastic derived from carpet, and the non-aromatic nylon fiber has a diameter of about 0.2 mm to 1 cm.

6. (Previously Presented) The composite material of claim 1, wherein said fused matrix comprises a blend of virgin thermoplastic and a blend of two or more carpet sources.

7. (Previously Presented) The composite material of claim 1, wherein said composite comprises about 25 to 35 wt.% non-aromatic nylon and about 1 to 40 wt.% of a polypropylene.

8. (Previously Presented) The composite material of claim 1, wherein said composite comprises about 0.1 to 35 wt.% nylon 6 and about 1 to 40 wt.% of a polypropylene.

9. (Previously Presented) The composite material of claim 1, wherein said composite comprises about 0.1 to 35 wt.% nylon 6,6 and about 1 to 40 wt.% of a polypropylene.

10. (Previously Presented) The composite material of claim 5, wherein said carpet comprises about 1 to 35 wt.% nylon 6, about 0.1 to 35 wt. % nylon 6,6 and about 25 to 35 wt.% polyolefin.

11. (Previously Presented) The composite material of claim 5, wherein said carpet comprises about 20 to 40 wt.% nylon 6, about 20 to 40 wt.% nylon 6,6 and about 20 to 40 wt.% polyolefin.

12. (Canceled)

13. (Original) The composite material of claim 1, wherein said composite material has a tensile strength (ASTM D638) of at least about $2 \cdot 10^3$ psi.

14. (Original) The composite material of claim 1, wherein said composite material has a tensile strength (ASTM D638) of at least about $2.5 \cdot 10^3$ psi.

15. (Original) The composite material of claim 1, wherein said composite material has a compressive strength (ASTM D695) of at least about $6 \cdot 10^3$ psi.

16. (Original) The composite material of claim 1, wherein said composite material has a compressive strength (ASTM D695) of at least about $6.5 \cdot 10^3$ psi.

17. (Original) The composite material of claim 1, wherein said composite material has a water absorption of less than about 3% by weight gain of water over a 24 hour period.

18. (Original) The composite material of claim 1, further comprising at least one dye.

19. (Original) A sheet formed from the composite material of claim 1 having a thickness of about 0.1 centimeter to about 2 centimeters.

20. (Original) A sheet formed from the composite material of claim 1 having a width of about 2 centimeters to about 200 centimeters.

21. (Currently Amended) A composite structural material comprising:

non-aromatic nylon fibers derived from carpet, carpet recycle, carpet scrap, or mixtures thereof, and having a length of about 0.9 cm to 8 cm and diameter of about 0.2 mm to 7 cm; and

a fused thermoplastic matrix comprising:

non-aromatic nylon, and polyolefin,

wherein the composite comprises some non-aromatic nylon fibers that are partially melted and others that remain unmelted; and

wherein the partially melted and unmelted non-aromatic nylon fibers are dispersed within the fused matrix and said composite structural material has a flexural elastic modulus (ASTM D790) of at least about $2 \cdot 10^5$ psi.

22. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises about 20 to 30 wt.% non-aromatic nylon.

23. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises about 0.1 to 30 wt.% nylon 6.

24. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises about 0.1 to 30 % nylon 6,6.

25. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises thermoplastic derived from carpet and the fiber has a diameter of about 0.2 mm to 1 cm.

26. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises a blend of virgin thermoplastic and thermoplastic derived from a carpet.

27. (Previously Presented) The composite material of claim 21, wherein said fused matrix comprises a blend of virgin thermoplastic and a blend of two or more carpet sources.

28. (Previously Presented) The composite material of claim 21, wherein said composite comprises about 25 to 35 wt.% non-aromatic nylon.

29. (Previously Presented) The composite material of claim 21, wherein said composite comprises about 0.1 to 35 wt.% nylon 6.

30. (Previously Presented) The composite material of claim 21, wherein said composite comprises about 0.1 to 35 wt.% nylon 6,6.

31. (Previously Presented) The composite material of claim 21, wherein said composite comprises about 25 to 35 wt.% of a polymer selected from nylon 6, nylon 6,6, or mixtures thereof, and about 35 wt-% polyolefin.

32. (Previously Presented) The composite material of claim 21, wherein said carpet comprises about 0 to 35 wt. % nylon 6, about 0.1 to 35 wt.% nylon 6,6, and about 25 to 35 wt.-% polyolefin.

33. (Previously Presented) The composite material of claim 21, wherein said carpet comprises about 20 to 40 wt.% nylon 6, about 20 to 40 wt.-% nylon 6,6, and about 20 to 40 wt.% polypropylene.

34. (Canceled)

35. (Original) The composite material of claim 21, wherein said composite material has a tensile strength (ASTM D638) of at least about $2 \cdot 10^3$ psi.

36. (Original) The composite material of claim 21, wherein said composite material has a tensile strength (ASTM D638) of at least about $2.5 \cdot 10^3$ psi.

37. (Original) The composite material of claim 21, wherein said composite material has a compressive strength (ASTM D695) of at least about $6 \cdot 10^3$ psi.

38. (Original) The composite material of claim 21, wherein said composite material has a compressive strength (ASTM D695) of at least about $6.5 \cdot 10^3$ psi.

39. (Original) The composite material of claim 21, wherein said composite material has a water absorption of less than about 3% by weight gain of water over a 24 hour period.

40. (Original) The composite material of claim 21, further comprising at least one dye.

41. (Original) A sheet formed from the composite material of claim 21 having a thickness of about 0.1 centimeter to about 2 centimeters.

42. (Original) A sheet formed from the composite material of claim 21 having a width of about 2 centimeters to about 200 centimeters.

43. (Previously Presented) The composite structural material of claim 21, wherein the composite structural material is formed by introducing carpet feed stock into an extruder, and extruding the carpet feed stock to form a structural composite member.

44. (Previously Presented) The composite material of claim 43, wherein the fiber is formed from a higher melting point component of the carpet feed stock, and the fused matrix is formed from a lower melting point component of the carpet feed stock.

45. (Withdrawn – Previously Presented) A method of manufacturing the composite structural material of claim 1, the method comprising the steps of:

(a) shredding carpet comprising polyolefin and non-aromatic nylon to a size of less than 3 centimeters to form a carpet feed stock comprising non-aromatic nylon fiber having a length of about 0.9 cm to 8 cm and a diameter of about 0.2 mm to 7 cm;

(b) adjusting the carpet feed stock to a content that comprises about 25 to 35 wt% non-aromatic nylon to form a balanced carpet feed stock;

(c) introducing the balanced carpet feed stock into an extruder having at least one barrel zone temperature greater than about 250°C to form a matrix-fiber material; and

(d) extruding the matrix-fiber material to form the composite structural material of claim 1,

wherein the composite structural material has a thickness of about 0.1 to 2 centimeters, a width of about 2 to 200 centimeters and an indeterminate length.

46. (Withdrawn) The method of claim 45, wherein said carpet comprises carpet ends, carpet recycle, carpet scrap or mixtures thereof.

47. (Canceled)

48. (Withdrawn) The method of claim 45, wherein said extruder has at least one barrel zone temperature greater than about 300° C.

49. (Withdrawn) The method of claim 45, wherein said feed stock is extruded at pressures above about $1.5 \cdot 10^3$ psi.

50. (Withdrawn) The method of claim 45, wherein said carpet feed stock is extruded at pressures above about $2 \cdot 10^3$ psi.

51. (Withdrawn) The method of claim 45, wherein said composite material is extruded to a thickness of from about 0.1 to 2 centimeters.

52. (Withdrawn) The method of claim 45, wherein the composite feed stock additionally comprises a pellet or flake thermoplastic resin.

53. (Withdrawn) The method of claim 45, wherein the length of the composite is less than about 10 meters.

54. (Currently Amended) A composite structural material comprising:

non-aromatic nylon fibers derived from carpet, carpet recycle, carpet scrap, or mixtures thereof, and having a length of about 0.9 cm to 8 cm;

a fused matrix derived from carpet, carpet recycle, carpet scrap, or mixtures thereof, and comprising:

polyolefin, and non-aromatic nylon,

wherein the composite comprises some non-aromatic nylon fibers that are partially melted and others that remain unmelted; and

wherein the partially melted and unmelted non-aromatic nylon fiber is dispersed within the fused matrix and said composite structural material has a flexural elastic modulus (ASTM D790) of at least about $2 \cdot 10^5$ psi.

55. (Previously Presented) The composite of claim 54, wherein the composite comprises a blend of polyolefin, non-aromatic nylon, and a hot-melt thermoplastic adhesive.

56. (Previously Presented) The composite material of claim 54, wherein said fused matrix comprises about 20 to 30 wt.% -non-aromatic nylon.

57. (Previously Presented) The composite material of claim 54, wherein said fused matrix comprises about 0.1 to 30 wt.% nylon 6.

58. (Previously Presented) The composite material of claim 54, wherein said fused matrix comprises about 0.1 to 30 wt% nylon 6,6.

59. (Previously Presented) The composite material of claim 54, wherein the composite consists essentially of carpet, carpet recycle, carpet scrap, or mixtures thereof.

60. (Withdrawn) A method of manufacturing the composite structural material of claim 21, the method comprising the steps of:

(a) shredding carpet comprising polyolefin and non-aromatic nylon to a size of less than 3 centimeters to form a carpet feed stock comprising non-aromatic nylon fiber having a length of about 0.9 cm to 8 cm and a diameter of about 0.2 mm to 7 cm;

(b) adjusting the carpet feed stock to a content that comprises about 25 to 35 wt% non-aromatic nylon to form a balanced carpet feed stock;

(c) introducing the balanced carpet feed stock into an extruder having at least one barrel zone temperature greater than about 250°C to form a matrix-fiber material; and

(d) extruding the matrix-fiber material to form the composite structural material of claim 21,

wherein the composite structural material has a thickness of about 0.1 to 2 centimeters, a width of about 2 to 200 centimeters and an indeterminate length.

61. (Withdrawn) A method of manufacturing the composite structural material of claim 54, the method comprising the steps of:

(a) shredding carpet comprising polyolefin and non-aromatic nylon to a size of less than 3 centimeters to form a carpet feed stock comprising non-aromatic nylon fiber having a length of about 0.9 cm to 8 cm and a diameter of about 0.2 mm to 7 cm;

(b) adjusting the carpet feed stock to a content that comprises about 25 to 35 wt% non-aromatic nylon to form a balanced carpet feed stock;

(c) introducing the balanced carpet feed stock into an extruder having at least one barrel zone temperature greater than about 250°C to form a matrix-fiber material; and

(d) extruding the matrix-fiber material to form the composite structural material of claim 54,

wherein the composite structural material has a thickness of about 0.1 to 2 centimeters, a width of about 2 to 200 centimeters and an indeterminate length.

62. (Withdrawn) A method of manufacturing a composite structural material, the method comprising the steps of:

(a) shredding carpet comprising polyolefin and non-aromatic nylon to a size of less than 3 centimeters to form a carpet feed stock comprising non-aromatic nylon fiber having a length of about 0.9 cm to 8 cm and a diameter of about 0.2 mm to 7 cm;

(b) adjusting the carpet feed stock to a content that comprises about 25 to 35 wt% non-aromatic nylon to form a balanced carpet feed stock;

(c) introducing the balanced carpet feed stock into an extruder having at least one barrel zone, wherein said introducing is at a temperature, pressure, and rate sufficient to form a matrix surrounding partially melted non-aromatic nylon fiber and unmelted non-aromatic nylon fiber, and wherein the temperature of said at least one barrel zone is greater than about 250°C to form a matrix-fiber material; and

(d) extruding the matrix-fiber material to form a composite structural material comprising:

non-aromatic nylon fibers; and

a fused thermoplastic matrix comprising:

non-aromatic nylon and polyolefin,

wherein the composite comprises some non-aromatic nylon fibers that are partially melted and others that remain unmelted, and wherein the partially melted and unmelted fibers are dispersed within the fused matrix.